(29) A method of repairing a clouded lens of an eye comprising introducing a substantially transparent liquid comprising a liquid perfluorocarbon or substituted derivative thereof into said lens in an amount effective to provide a substantially transparent window therein.

(30) The method of claim 29 wherein said liquid perfluorocarbon is a perfluorocyclocarbon.

REMARKS

Reconsideration is respectfully requested of the initial rejection of claims 1-25 in the previous official Office Action especially since such claims have been amended to remedy all of the Examiner's objections. New claims 26-30 have been added and are consistent with the amended claims. Basis for the new claims can be found throughout the specification; for instance, support can be located for claim 26 on page 19, lines 13-21, and for claims 27-30 on page 23, lines 15-25.

In particular, with respect to the initial rejection of the claims under 35 U.S.C. §112, it is noted that claims 1-25 and new claims 26-30 now particularly claim and describe in full, clear, concise and exact terms the claimed invention enabling any person skilled in the art to make and use the same in conformance with 35 U.S.C. §112.

Claims 1-16 and 23-25 have now been amended to positively recite that the purpose or reason for treating the eye is to treat a disorder of an eye. Although it is believed that as originally presented in claims 1-16 and 23-25, the term "treating an eye" should have been read to mean treating a disorder of an eye, in view of the statement on page 19, lines 11-13 of the specification, the claims have been amended to particularly recite this feature. Also, it has been made clear by this particular

amendment that all claims, including 20-22, have been amended to recite functionally the amount of liquid perfluorocarbon or liquid comprising a liquid perfluorocarbon or substituted derivative thereof is to be an effective amount. Claim 4 has been amended to recite that the vitreous is to be removed at substantially the same time the perfluorocarbon is being introduced into the vitreous, in view of the statement made on page 20, lines 9-11, in the specification. Claims 17-19 have been amended positively reciting what constitutes repairing, i.e., "locating said animal in a position to provide means for said liquid to maintain the retina against the choroid of said eye to repair said retina." This is specifically recited in the specification on page 9, lines 23-30, page 10, lines 1-3, page 23, lines 26-30, and page 24, lines 1-7.

As to the changes made in the specification and claims, no new matter has been added. Support for changing "transparentize" to --substantially transparentize-- in the specification and claims can be found in the specification on page 8, lines 25-26, on page 12, lines 1-17, and on page 19, lines 18-27.

Reconsideration is respectfully requested of the specification and claims under 35 U.S.C. §112, first paragraph, as containing insufficient exemplary matter to support "treating an eye," "a perfluorocarbon or substituted derivative thereof," "brominated perfluorocarbon," and "iodinated perfluorocarbon." First of all, claims 1-16 and 23-25 have been amended to positively recite "treating a disorder of an eye." The specification complies with 35 U.S.C. §112, first paragraph, because it contains exemplary matter to support "treating an eye" in view of the numerous examples of ophthalmological disorders disclosed in the specification and examples of treating such disorders with liquid

perfluorocarbons and substituted derivatives thereof. For instance, such examples can be found in the specification and include, but are not limited to, replacing the vitreous and aqueous, on page 8, lines 2-4 and 12-20, on page 9, lines 11-17, on page 12, lines 5-8, on page 20, lines 16-30, on page 21, lines 1-7, and on page 23, lines 1-14, transparentizing the lens and cornea, on page 8, lines 4-6 and 20-23, page 9, lines 17-22, on page 20, lines 13-15, and on page 23, lines 15-25, and repairing detached and torn retinas, on page 8, lines 6-9, on page 9, lines 23-30, page 10, lines 1-3, page 12, lines 8-12, on page 23, lines 26-30, and on page 24, lines 1-7. Further, Examples I-III disclose introducing a liquid perfluorocarbon into the anterior chamber of an eye of a cat, into the anterior chamber and posterior chamber in the eyes of a rabbit and into the lens of an eye of a rabbit, respectively. Thus, it is believed that the specification as originally written provided sufficient exemplary matter to support "treating an eye." Nevertheless, applicant has amended the claims to treating disorders of an eye and believes that there is sufficient exemplary matter in the specification to support such a statement.

All claims have been amended to positively recite "a liquid perfluorocarbon or substituted derivative thereof" consistent with the specification, especially at pages 10-19 in the detailed description. In addition to such detail, U. S. Patent No. 3,911,138 and 4,105,798 have been incorporated by reference to further teach a person of ordinary skill in the art. Indeed, reconsideration of the specification and examplary matter is requested for the terms "liquid perfluorocarbon and substituted derivatives thereof."

Additionally, "substituted derivative thereof" has been positively characterized on page 10, lines 15-18 in the specification as perfluorocarbons with chemical elements such as oxygen, nitrogen and bromine, etc. Preferred oxygen and nitrogen containing compounds are listed at page 14 of the specification. Moreover, "brominated perfluorocarbon" and "iodinated perfluorocarbon" have been characterized by "substituted derivative thereof" on page 10, lines 15-18. In addition, an example of a brominated perfluorocarbon, perfluorooctylbromide, has been positively recited throughout the specification and in the claims on page 9, line 9, on page 10, line 5, page 16, compound 1, page 24, lines 9-10 and claims 16 and 22. Still further, Examiner's attention is specifically directed to Example I, on page 25, wherein perfluorooctylbromide was actually introduced into the anterior chamber of an eye of a living cat. Thus, it is respectfully suggested that there is sufficient exemplary matter to support "brominated perfluorocarbon" and "iodinated perfluorocarbon" as they appear in the specification and in claims 16 and 22. It is believed, therefore, that it has been made clear by this particular amendment that the specification and claims contain a written description of the invention in full, clear and concise terms to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and thus conforms with the requirements of the first paragraph of 35 U.S.C. §112.

Reconsideration also is respectfully requested of the rejection of claims 20-22 under 35 U.S.C. §103 as being unpatentable over Wada who teaches perfluorocarbons to be old x-ray contrast agents. Claims 20-22 are clearly patentable over Wada since Wada provides absolutely no suggestion whatsoever of em-

ploying a perfluorocarbon as the x-ray contrast agent. Wada is directed to contrast compositions comprising a contrast medium and a perfluorocarbon. Attention is specifically directed to column 1, lines 4-8, column 2, lines 14-29, column 8, lines 8-21, Examples 1-9 and claims 1-2 in Wada. Clearly, Wada in no way whatsoever suggests the use of a perfluorocarbon as the contrast agent. Nevertheless, it is respectfully pointed out that even assuming arguendo that Wada, or any other patent, would teach the use of perfluorocarbons as contrasting agents, it would not be obvious to one of ordinary skill in the art to modify Wada to provide the present invention, i.e., provide contrast agents in eyes. Wada is not concerned with the same proximate problems as the invention and, therefore, there is no suggestion by Wada to treat the eyes as applicant has done. Wada is concerned with employing contrasting compositions for angiography in general, comprising a contrast medium and a perfluorocarbon. The use of a perfluorocarbon in Wada is to alleviate or minimize the side effects associated with the administration of contrast mediums rather than employing it as the actual contrast agent. Wada has no recognition or teachings of employing a perfluorocarbon as a contrasting agent let alone employing it in the eye of an animal. Therefore, it is believed that the presently claimed invention clearly patentably distinguishes over Wada.

Reconsideration is also respectfully requested of the rejection of claims 1-19 under 35 U.S.C. §103 as being unpatentable over the Vygantas et al AS+AR and Lincoff et al who teach the treatment of eyes with perfluorocarbon gases. These references were cited by the applicant at pages 4-5 of the specification. Claims 1-19 have now been amended to positively recite liquid perfluorocarbons. Therefore, it is believed that the

claimed invention clearly patentably distinguishes over the gases disclosed in Vygantas et al and Lincoff et al or any combination thereof.

Vitreous replacement by perfluorocarbon gases leaves considerable room for improvement. These gases equilibrate with blood gases (O_2, CO_2, N_2) in the vitreous and reach an equilibrium condition after hours or days. The equilibrium finally reached is a function of the partial pressure of the particular gas as well as the blood gases. However, since perfluorocarbon gases are compressible, they will remain in an equilibrium state only as long as the gas pressure is essentially unchanged. For example, the gases would increase in volume during an airplane flight while their volume would probably also change during anesthesia because most anesthetic gases rapidly diffuse through body tissues. Fluorinated anesthetics might represent particularly complicated gas-vapor level equilibrium. Because of these undesired properties, among others, perfluorocarbon gases are less than optimal as vitreous replacements. Thus, before this invention, in spite of considerable work reported in connection with vitreous replacement, as set forth in the specification, there was no ideal gelatinous substitute for the complex glycoprotein structure of the vitreous body. Known vitreous replacements are not completely satisfactory because they may cause post-operative complications resulting in total blindness. Vitreous substitutes, thus, have somewhat fallen into disrepute because basic researchers have had difficulty introducing a substitute that is clear, inert, well tolerated, and remains viscous long enough.

More significantly, this invention will enable those who are blind to be able to see. Many disorders of the eye may now be effectively treated in view of this invention. When one considers

the benefits to be derived from this invention, indeed it rises to the dignity of patent protection.

An allowance of this application is respectfully requested.

Respectfully submitted,

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